

# ABSTRACT

The present invention provides an high purity and high molecular oxirane derivative useful as a starting material for medical purposes, mainly drug delivery system, and a process for the preparation thereof.

The present invention concerns an oxirane derivative represented by the following general formula:  $RO(C_2H_4O)_nH$  (in which R represents a  $C_{1-7}$  hydrocarbon group; and n represents an integer of from 20 to 900),

10 characterized in that the following requirements are satisfied:

(A) Supposing that the straight line between the elution starting point and the elution end point on chromatogram obtained by gel permeation chromatography is  $P_{baseL}$ , the total peak area above  $P_{baseL}$  is  $P_{area}$ , the height of the top of the maximum peak of refractive index:  $P_{top}$ , with respect to  $P_{baseL}$  is  $P_{topH}$ , and the peak area between the point at which the height of the elution curve from the elution starting point toward  $P_{top}$ , with respect to  $P_{baseL}$  is  $1/5$  of  $P_{topH}$  and the point at which the height of the elution curve from  $P_{top}$  toward the elution end point, with respect to  $P_{baseL}$  is  $1/5$  of  $P_{topH}$  is  $P_{areaM}$ ,  $P_{area}$  and  $P_{areaM}$  satisfy the following relationship:

15  $P_{areaM}/P_{area} \geq 0.85$

; and (B) Main spots having  $R_f$  value falling within the range of from 0.2 to 0.8 have a purity of not less than 98%, and a process for the preparation of such an oxirane derivative which comprises reacting ROH with oxirane in the condition that the water content in the reaction system is kept to not more than

25 5 ppm.